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Creating inclusive teams through perceptions of supplementary and complementary person-team fit: Examining the relationship between person-team fit and team effectiveness

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Abstract

Using a multi-wave, multi-level design, this study unravels the impact of subjective (dis)similarities in teams on team effectiveness. Based on optimal distinctiveness theory (Brewer, 1991) and the social inclusion model (Shore et al., 2011), we assume combined effects of individual and shared perceptions of supplementary and complementary person-team fit on affective and performance-based outcomes. Furthermore, at the team level we expect this relationship to be mediated by team cohesion. In a sample of 121 participants (across 30 teams), we found that teams in which members share perceptions of high supplementary as well as high complementary fit outperform those in which they do not. Additionally, members of such teams report higher levels of team satisfaction and viability. Both of these occur through positive effects on the cohesion within the team. Thereby, our results support the central tenet of the social inclusion model. At the individual level this enhancing effect of the interaction was not supported, providing additional evidence for considering perceived person-team fit as a collective construct.

Keywords: Person-team fit, Team effectiveness, Satisfaction, Performance, Viability

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Introduction

Teamwork in organizations is increasingly the norm, yet the challenges of working effectively in teams are considerable (Salas, Goodwin, & Burke, 2008). Hence, a key question for scholars has been to identify those conditions and characteristics of teams that spur high levels of effectiveness. This question has become even more relevant over the last decade, as organizational teams have become increasingly assorted (Bowers, Pharmer, & Salas, 2000; Webber & Donahue, 2001). This trend is demonstrated in terms of demographic attributes such as race, sex, and age, as well as deeper-level characteristics such as values and skills (Halfhill, Sundstrom, Lahner, Calderone, & Nielsen, 2005). A prime focus of research has therefore been to investigate how team members' objective (dis)similarities relate to team attitudes and behaviors (e.g., Mannix & Neale, 2005). Because teams are also confronted with subjective (dis)similarities, *perceived person-team fit* or the perceived compatibility between individual team members and their team (Chatman, 1989; Kristof, 1996; Schneider, 1987) can be considered as a concomitant challenge to team effectiveness. Team members compare their psychological characteristics (e.g., values, goals, personality) with those of other team members and construct a sense of fit within the team.

Although previous research mostly showed that high degrees of perceived person-team fit predict positive work outcomes such as performance and satisfaction (Kristof-Brown & Guay, 2011), we believe that prior studies neglected two fundamental aspects of fit. A first gap concerns the disparity of fit in terms of *similarities* (i.e., possessing characteristics that are

similar to the team) versus *complementarities* (i.e., possessing characteristics that complement the team) (Kristof, 1996; Ostroff, 2012; Piasentin & Chapman, 2007) and especially their combined effects. As suggested in a recent review, (Ostroff, 2012), simultaneously considering individuals' perceptions of fit in terms of similarity (labelled supplementary fit, the dominant operationalization of person-team fit) and complementarity (labelled complementary fit) is an important road for future research. Following this suggestion, we build on optimal distinctiveness theory (ODT; Brewer, 1991) to argue that the effects of supplementary fit may be contingent on the perceived level of complementary fit and test the proposition that individuals' team-related attitudes peak when they perceive high levels of both supplementary and complementary fit.

A second gap concerns the conceptualization of person-team fit as a group construct. An environment like a team is a complex system, meaning that the combination of perceptions regarding fit across team members may play a crucial role when explaining team effectiveness. Recent studies by Seong and colleagues (Kristof-Brown, Seong, Degeest, Park, & Hong, 2014; Seong, Kristof-Brown, Park, Hong, & Shin, 2012) indeed support the relevance of perceived person-team fit as a meaningful group-level concept. For example, a single team member may perform better if he or she believes that there is a good fit with the rest of the team. But if other team members do not perceive a good fit, the team is unlikely to function well as a group, which then influences team-related outcomes. Put differently, individuals perform well or feel good when they believe themselves to fit the team, while teams perform well and elicit team-related wellbeing when all team members share the perception that they fit the team. We build on the social inclusion model that elaborates on ODT (Shore et al., 2011) to argue that shared perceptions of perceived supplementary and complementary person-team fit together create an

inclusive team climate and thereby benefit team cohesion and effectiveness. With this study, we thus respond to recent calls from scholars in the domain of fit research (Ostroff, 2012; Jansen & Kristof-Brown, 2006; Seong & Kristof-Brown, 2012) by focusing on the impact of both individual- and group-level perceptions of fit.

Hence, the main objective of this study is to examine whether high levels of complementary fit strengthen the established positive relationship between supplementary fit and team effectiveness, focusing on individual as well as shared perceptions of perceived person-team fit. We thereby contribute to the literature in several ways: (1) by introducing optimal distinctiveness theory (Brewer, 1991) and the social inclusion model (Shore et al., 2011) in the fit literature to explain the effects of a positive interaction between supplementary and complementary fit, (2) by examining person-team fit not only on the individual, but also on the team level, allowing us to scrutinize single-level as well as cross-level effects, and (3) by combining individual (i.e., team member satisfaction and perceived viability) as well as team outcomes (i.e., performance) as a proxy for team effectiveness. In the literature overview that follows, we discuss the person-team fit literature, the optimal distinctiveness theory, and the social inclusion model. Consequently, we derive arguments from all three literature streams to develop our hypotheses.

Theoretical Foundations and Hypotheses

Perceived supplementary versus complementary person-team fit

Perceived person-team fit is defined as the experienced compatibility between individual team members and their team (Chatman, 1989; Kristof, 1996; Schneider, 1987; Seong et al., 2012). Perceived fit refers to a subjective appraisal and, thus, requires that individuals compare their own characteristics to those in their environment. The personal and environmental

characteristics that can be included in the comparison are numerous, e.g., values, personality, goals, needs, and abilities (Kristof-Brown, Barrick, & Stevens, 2005a). However, research shows that specific assessments tend to be highly intercorrelated (Kristof-Brown, Zimmerman, & Johnson, 2005b) and that a superordinate person-team construct drives the more specific fit assessments (Seong & Kristof-Brown, 2012).

An important discussion in fit literature involves the interpretation of 'compatibility'. In a recent study, Piasentin and Chapman (2007) build on a known differentiation introduced by Muchinsky & Monahan (1987) and state that perceived fit can derive from either perceived similarity, perceived complementary, or both. From a *supplementary fit* perspective, fit is experienced when an individual perceives similarities between his/her own characteristics and those in their environment. Although supplementary fit is typically assessed as similarity of values, goals, or personality traits (e.g., value congruence), in a team context, need or ability similarities between team members may also come about. The impact of perceived supplementary fit is theoretically based on the similarity-attraction paradigm (Byrne, 1971) in which a person is attracted to and more inclined to like others similar to themselves because these relationships are more rewarding and supportive (Cable & Edwards, 2004). Indeed, empirical evidence supports the relationship between perceived supplementary person-fit and co-worker focused outcomes (e.g., co-worker satisfaction, cohesion), work attitudes (e.g., satisfaction, organizational commitment, and turnover intentions), and behaviors (e.g., OCB) (Guan, Deng, Risavy, Bond, & Li, 2011; Kristof-Brown et al., 2005b).

Nevertheless, fit can also be experienced in a particular situation of dissimilarity among individuals, i.e., complementarity. Therefore, following a *complementary fit* perspective, fit is experienced when an individual perceives that he/she differs from the environment on important

criteria and perceives that this dissimilarity makes him/her unique and, therefore, of value to the environment (Piasentin & Chapman, 2007). Although complementary fit is most typically examined at the job-level as ability or need-based fit (e.g., demands-abilities fit), in a team context complementary fit may also occur on values, goals, or personality traits. The impact of perceived complementary fit is based on the psychological process of need fulfillment (Edwards, 1991) in which a weakness or need of an employee is compensated by a strength in the work environment and vice versa, benefiting work-related attitudes and behaviors (Kristof-Brown et al., 2005b; Oh et al., 2014). Piasentin and Chapman (2007) were the first to empirically demonstrate that perceptions of fitting in by being different to the organization contribute to job satisfaction, affective commitment, and turnover intentions, above and beyond the effects of perceived similarity. Likewise, Guan and colleagues (Guan et al., 2011) found support for the relationship between complementary person-organization fit and organizational commitment.

Important in the differentiation introduced by Piasentin and Chapman (2007) is that complementary fit is not experienced simply in absence of perceived similarity. Hence, one can both feel like he/she simultaneously supplements and complements a team. A major shortcoming of fit studies to date is that they do not examine the interaction of these two major conceptualizations of fit (Ostroff, 2012). However, optimal distinctiveness theory (ODT; Brewer, 1991) and the social inclusion model (Shore et al., 2011) that extends ODT propositions to a team level suggest that it is essential to simultaneously consider supplementary and complementary fit, as both types of fit ought to interact.

Effects of individual perceptions of supplementary and complementary fit

When considering the foregoing distinction between supplementary and complementary fit, there is a clear link to the optimal distinctiveness theory, which provides a model of

psychological needs relevant for understanding well-being within a group context (Brewer, 1991). ODT proposes that humans have two major social needs. On the one hand, people have a desire to belong to and be immersed in a social group. This *need for belonging* assumes that team members seek assimilation, meaning that the similarity among them is emphasized. Since supplementary person-team fit is defined as similarity among team members, it stands to reason that high levels of supplementary person-team fit satisfy the need for belonging. Yet, according to ODT (Brewer, 1991), people also have a desire to distinguish themselves from other persons in a social context. This *need for uniqueness* assumes differentiation, meaning that individuals value their unique characteristics. As complementary fit has been defined as having unique characteristics that add to the team, it makes sense that high levels of complementary person-team fit satisfy the need for uniqueness. According to ODT, when one need is highly satisfied at the expense of the other, the individual's sense of security and self-worth is threatened. Brewer (1991) therefore claims that people seek equilibrium between both needs. ODT states that in a team where people feel both similar to and distinct from others, individuals develop a strong group identity that benefits their wellbeing and leads to positive attitudes towards the team (Brewer, 1991). Based on these arguments, we assume an interaction effect in that team members who perceive high levels of both supplementary and complementary person-team fit feel included in their team, which leads to positive outcomes. In particular, we propose that team members who perceive similarities will be even more satisfied with their team and perceive a higher viability of their team when they also perceive that other team members appreciate their unique characteristics. Hence our first hypothesis sounds:

Hypothesis 1: At the individual level, complementary fit moderates (i.e., acting as an enhancer) the relationship between supplementary fit and (a) team member satisfaction, and (b) perceived viability of the team.

Shared perceptions of supplementary and complementary fit

Besides individual-level fit, a recent trend is to conceptualize person-environment fit as a group-level phenomenon (e.g. DeRue & Hollenbeck, 2007; Edwards & Shipp, 2007; Seong et al., 2012). Considering different levels of analysis, Chan (1998) argues that person-environment fit forms an ideal concept for multi-level research. We therefore consider group-level supplementary and complementary fit as shared perceptions with regard to the two fit types, meaning that we apply a direct consensus model (Chan, 1998). Studies in other domains already demonstrated that aggregate perceptions of individual-level concepts (as in a direct consensus model) are important to explain individual as well as team and organization outcomes (Ehrhart, 2004; Simons & Roberson, 2003). In this regard, Aumann and Ostroff (2006) suggested and Kristof-Brown and colleagues (Kristof-Brown et al., 2014) empirically supported the idea that interactions between individuals in a unit produce a collective fit experience that influences individual and unit-level outcomes. According to Schneider and Reichers' (1983) symbolic interaction explanation, shared perceptions of fit emerge because individuals learn (through repeated interactions) whether or not other team members share their own perceptions of fit.

While researchers have recently expressed their interest in the idea of team-level fit, empirical studies to date focused mainly on individual-level perceptions. Exceptions are recent studies by Seong and Kristof-Brown (Kristof-Brown, et al. 2014; Seong & Choi, 2014; Seong et al., 2012) who examined antecedents and consequences of group-level value-based and ability based fit. However, their operationalization of fit differs from Piasentin & Chapman's (2007)

definition of supplementary and complementary fit, which we follow in this study. They found support for a positive relationship between group-level fit perceptions and group-level outcomes, reporting positive relationships with team efficacy (Kristof-Brown et al., 2014) and group performance (Kristof-Brown et al., 2014; Seong & Choi, 2014; Seong et al., 2012). Seong and Choi (2014) emphasize the mediating role of conflict reduction and argue that teams with high group-level fit perform better because they experience less task and relationship conflict in their interactions, whereas Kristof-Brown and colleagues (Kristof-Brown, et al., 2014) emphasize the mediating role of team cohesion. In this paper, we follow Kristof-Brown and colleagues' (2014) reasoning and submit that, because of the occurrence of group phenomena like reduced conflict and cohesion, team-level perceptions of fit are more likely to influence team-related outcomes than individual-level perceptions of fit. Although these studies emphasize the importance of considering a team's shared perceptions of person-team fit, they do not use Piasentin and Chapman's (2007) approach of supplementary and complementary fit, nor do they consider combined effects of both. Hereafter, the psychological process responsible for the combined effect of these share perceptions is further clarified by means of the central tenet of the social inclusion model, i.e. the idea of team inclusion.

Effects of shared perceptions of supplementary and complementary fit

Recently, the social inclusion model (Shore et al., 2011) has extended ODT by postulating that at a group level the need for belonging and need for uniqueness interact to determine whether and to what extent a team is inclusive. Shore and colleagues (2011) propose that teams are perceived as inclusive when team members collectively feel accepted as members of the team (i.e. satisfying the need for belonging) and feel that their unique characteristics are valued by the team (i.e. satisfying the need for uniqueness). As Jansen and colleagues (Jansen,

Otten, Zee & Jans, 2014) suggest in their research article on inclusion, (inclusive) teams can form both top-down, such that individual group members adapt to an already existing group prototype, and/or bottom-up, such that the group prototype is defined over time, and is shaped by the contributions of all individual members. Ferdman and colleagues (2010) describe inclusion as a condition that "encourages the process of human development at work because it entails a sense of being at ease and engaged while at the same time encouraging and even requiring individuals to stretch beyond their comfort zones" (Ferdman, Avigdor, Braun, Konkin, & Kuzmycz, 2010, p 11) and claim that effects of inclusion are more likely to be manifested in groups that – across members – experience more inclusion. According to the social inclusion model (Shore et al., 2011) inclusive teams outperform non-inclusive ones (e.g., assimilated or differentiated teams) on desirable outcomes such as increased job satisfaction and performance. Shore and colleagues (2011) argue that these positive outcomes come about because inclusion removes status differences and levels the playing field, meaning that group members feel free to be themselves and express their opinions. The authors state that inclusion stimulates cohesion in and attachment to the team, improves trust in other team members, and reduces chances of conflict in the team. Ferdman et al. (2010), for instance, found positive and significant correlations between experienced inclusion and organizational affective commitment and Cho and Mor Barak (2008) found perceptions of inclusion to predict both organizational commitment and job performance. If the need for belonging equals perceptions of supplementary fit and the need for uniqueness equals perceptions of complementary fit, as detailed earlier, this would mean that in teams with an inclusive climate all team members share the perception that they simultaneously supplement and complement the team.

Hence, we extend our first hypothesis and propose that teams are most effective, when team members share the perception of high levels of supplementary and complementary person-team fit (i.e., interaction effect), because then the team is characterized by an inclusive climate (Shore et al., 2011). In other words, the interaction between team members' shared perception of supplementary and complementary fit benefits individuals' team satisfaction, team viability (i.e., cross-over effects), and team performance.

Finally, to better understand this psychological process, we introduce a mediator in the relationship between shared perceptions of person-team fit and team effectiveness. As stated by the social inclusion model one of the mediating mechanisms responsible for this relationship may be team cohesion, which was also suggested by Kristof-Brown and colleagues as a mediator of the relationship between collective fit and team performance (Kristof-Brown, et al., 2014). Although Shore and colleagues (Shore et al., 2011) only briefly discuss the connection between inclusion and team cohesion, a clear link can be deduced, in that an inclusive climate may develop high levels of team cohesion. According to Shore and colleagues (Shore et al., 2011), in a situation of inclusion, team members are not inclined to suppress dissimilarities as would happen in a climate of assimilation (i.e., high satisfaction of the need for belonging and low satisfaction of the need for uniqueness). In an inclusive team, the psychological security offered by feeling similar to team members and therefore accepted by them, encourages team members to display and use their (dis)similarities in a meaningful and constructive way. We claim that this sensation of inclusion may, thus, facilitate the development of team cohesion defined as an emergent state in which a group tends to stick together and remain united in the pursuit of its instrumental objectives (Tekleab et al., 2009), and as such promote team effectiveness. The

impact of team cohesion on team performance and well-being is supported by strong meta-analytical evidence (Gully, Devine & Whitney, 1995). Hence our second hypothesis sounds: Hypothesis 2: At the team level, shared perceptions of supplementary fit have a positive, indirect relationship with (a) team member satisfaction, (b) perceived viability of the team, and (c) team performance, through team cohesion. This indirect relationship is conditional on the level of complementary fit, being strongest when complementary fit is high. All hypotheses are integrated in a multilevel moderated mediation model which is shown in Figure 1.

Insert Figure 1 about here

Method

Participants and procedure

We collected multiple-wave data (during an 18-week long team project in 2010-2011) in a group of 121 college students participating in a course on Strategic Management in a large Dutch university. This sample contained more female (71.07%) than male (28.93%) students. Participating students were in the third year of their four-year curriculum and had similar ages (ranging between 20-23 years of age). Prior to the semester in which the research took place, students spent six months doing an internship in tourism or hospitality-related organizations, providing them with some work experience. Students were divided into project teams with three to five members that collaborated intensively – on average one meeting a week – on a collective course assignment for a period of about four months. The assignment involved a real-life company in the hospitality business for which the students had to develop new ideas for value-adding practices. Depending on students' individual year program, the assignment counted for about one-third of their final grade point average.

For this study, we used three particular waves of a multi-wave online survey data collection In the first wave (15 weeks after group formation), the students reported on their perceived supplementary and complementary person-team fit and on their perceptions of team cohesion (response rate = 76.86%). In another wave (18 weeks after group formation), they reported on the individual-level outcomes, namely satisfaction with the team and perceived viability of the team (response rate = 88.43%). Finally in a last wave (i.e., few weeks after termination of the project), each project team received a collective grade on their assignment by their course instructor, which we used as a third-party measure of team performance.

Measures

Independent variables. Participants completed Piasentin and Chapman's (2007) multidimensional[1] measure of perceived fit in wave one. The original measure consists of seventeen items (i.e., nine supplementary and eight complementary items). However, we omitted certain items before computing scale scores for three reasons. First, we left out one supplementary item (i.e., 'the underlying philosophy of this organization reflects what I value in a company') because we did not consider it applicable in a team context. Second, we removed three reverse-keyed items of the supplementary fit scale because respondents consistently labeled them as confusing, which resulted in low factor loadings. Third, we removed one supplementary fit item and three complementary fit items because they did not contain a clear referent (e.g., values, skills, or abilities) with regards to person-team fit. Such items elicit a holistic perception of fit, and are hence more prone to consistency biases (Seong & Choi, 2014). Therefore, only items with a clear referent were retained (see Appendix for an overview of the retained items). The wording of the items was slightly adapted to capture person-team fit instead of person-organization fit. We changed the words 'employees/coworkers' into 'team members' and the

words ‘company/organization’ into ‘team’. Participants were asked to rate themselves on a seven point scale ranging from *strongly disagree* (1) to *strongly agree* (7). The internal reliability of the supplementary (α=.75) and complementary (α=.86) fit scales was good.

Mediating variable. We measured team cohesion in wave one, with a six-item measure by Tekleab, Quigley, and Tesluk (2009), e.g., ‘Members of this team help each other when they are working on a task’ (α=.94).

Dependent variables. We measured two individual-level outcome variables in a second wave. First, *team member satisfaction* was measured with a five-item scale by Vogel and Feldman (2009), e.g., ‘I get along well with the people of my team on a day-to-day basis’ (α = .83)[2]. Second, *perceived viability of the team* was measured with a five-item scale by Tekleab, Quigely, and Tesluk (2009), e.g., ‘I would be happy to work with the team members on other projects in the future’ (α = .88). Next to these individual-level outcomes, we also included *team performance* as a team-level outcome. Team performance was operationalized as the grade that teams received for their assignment. Grades were assigned by the course instructor and could range from 1 (very low performance) to 10 (very high performance).

Results

Confirmatory factor analysis

We used confirmatory factor analyses (CFA) to establish construct validity. Model fit was evaluated according to a number of criteria: the χ^2-statistic and its degrees of freedom, the root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the Tucker-Lewis index (TLI). Values of CFI $\geq$ .90, TLI $\geq$ .90, and RMSEA $\leq$ .10 indicate an acceptable fit of the model to the data, while values of CFI $\geq$ .95, TLI $\geq$ .95, and RMSEA $\leq$ .06 indicate a good fit of the model to the data (Hu & Bentler, 1999). First, we estimated the

hypothesized model with five latent factors: supplementary fit, complementary fit, team cohesion, team member satisfaction, and perceived viability (Model A – see Table 1). This model showed an acceptable fit to the data ($\chi 2(263)=438.64$, $p<.001$; RMSEA=.08 CFI=.94; TLI=.94). Next, we estimated four alternative models (Models B to E – see Table 1) and compared these to Model A. The χ^2-difference tests showed that Model A offered a better fit to the data compared to these alternative models. In sum, the CFA results offer support for the construct validity of our measures and suggest that supplementary and complementary fit represent different factors.

Insert Table 1 about here

Next, we assessed the presence and influence of common method variance, following recommendations by Williams, Hartman, and Cavazotte (2010). In particular, we included a latent marker variable to the five-factor CFA model described above. We chose to use three items[3] assessing the universalism value of Schwartz's values measure, as universalism is unlikely to be theoretically related to any of the substantive variables in our model. These items were assessed at the start of the assignment of the project, in a separate wave. First, we fitted a CFA model with this marker variable, essentially yielding a 6-factor model. Next, we estimated a baseline model, in which the correlations between the latent marker variable and the other latent variables is fixed at zero, and the factor loadings and error terms of the marker variable indicators are fixed at the values obtained in the CFA model with marker variable. Subsequently, we fitted a constrained model (Method-C) in which all indicators of the model loaded on the latent marker variable and in which these factor loadings were all constrained to be equal. A significantly better fit of this model to the data compared to the baseline model suggests that common method variance is present and has an equal effect on all indicators. We also fitted an

unconstrained model (Method-U) in which all indicators of the model freely loaded on the latent marker. A significantly better fit of this model compared to the constrained model suggests that common method variance is present, but has an unequal effect on all indicators. Finally, we estimated a model in which the correlations between the substantive latent variables were constrained to the values obtained in the baseline model (Method-R). A significantly worse fit of this model compared to the constrained or unconstrained model suggests that common method variance is present and biases the correlations between the latent variables.

Model fit indices of these CFA models with a latent marker variable can be consulted in Table 1. First, the constrained model offered a significantly better fit to the data than the baseline model. This shows that there is shared common method variance between the indicators of the latent variables and the latent marker variable. The unconstrained model offered a significantly better fit, compared to the constrained model, meaning that the influence of the common method was not constant for all indicators. Finally, the Method-R model offered a significantly better fit—as opposed to a significantly worse fit—compared to the unconstrained model, meaning that the relationships between the latent variables were not biased by the possible presence of common method variance. Hence, we can conclude that common method variance is present, but does not bias the relationships between the substantive variables (Williams et al., 2010).

Data aggregation

As we were interested in examining team-level perceptions of supplementary and complementary fit—based on a direct consensus model (Chan, 1998)—within-group agreement and between-group variability needed to be established before individual-level scores could be aggregated to the team level. In line with previous studies (e.g., Ehrhart, 2004), we estimated r_{wg} scores for each team, and ICC(1) and ICC(2) values. First, r_{wg} scores assess the level of

agreement within each team and should ideally exceed .70 (Klein & Kozlowski, 2000). The average r_{wg} scores in our sample were .87 for supplementary fit and .82 for complementary fit. However, one team had a low agreement score (r_{wg}=.50) for supplementary fit and two teams had low agreement scores (r_{wg}=.28 and r_{wg}=.53) for complementary fit. This may indicate that shared perceptions of supplementary or complementary fit did not yet emerge in these teams. In line with recommendations by Klein and Kozlowski (2000), these teams were not included when aggregating fit perceptions to the team level. Average r_{wg} scores for team cohesion (r_{wg}=.76), team satisfaction (r_{wg}=.84), and team viability (r_{wg}=.84) all met the .70 criterion.

Second, we computed Intraclass Correlation Coefficients. Considering ICC(1) values, our results showed that 33.15% of the variance in supplementary fit (F(28,64)=2.59, p<.001) and 32.00% of the variance in complementary fit (F(27,60)=2.48, p<.01) could be explained by team membership. As Klein and Kozlowski (2000) explain, aggregation is justified when the F test for these ICC(1) values is significant. Finally, the ICC(2) values of supplementary (.61) and complementary fit (.60) did not meet the .70 criterion (Klein & Kozlowski, 2000). However, a more liberal .60 cutoff might be more appropriate given the small average group size of the teams in our sample (Glick, 1985). Using the latter criterion, our findings suggest that the group means for supplementary and complementary fit are reliable. In sum, the r_{wg}, ICC(1) and ICC(2) values justify aggregating supplementary and complementary fit scores to the team level by calculating the average of both variables for each team. Concerning the other variables, 49% of the variance in team cohesion (F(29,65)=4.09, p<.001), 48% of the variance in satisfaction (F(29,77)=4.30, p<.001), and 59% of the variance in team viability (F(29,77)=6.11, p<.001) was situated at the team level. Moreover, the team-level averages of team cohesion (ICC(2)=.76), team satisfaction (ICC(2)=.77), and team viability (ICC(2)=.84) were reliable.

Hypothesis testing

Insert Table 2 about here

Table 2 presents means, standard deviations, and correlations among the study variables. Within-group correlations are presented below the diagonal while between-group correlations are provided above the diagonal. Individual-level supplementary fit positively correlated with team cohesion (r = .47), while team cohesion, in turn, correlated positively with satisfaction (r = .30) and viability (r = .22). At the team level, the aggregate of supplementary fit positively correlated with the team average of team cohesion (r = .87) satisfaction (r = .79), viability (r = .73), and the grade assigned to team (r = .38), while the aggregate of complementary fit positively correlated with the team average of team cohesion (r = .41) and satisfaction (r = .43).

We estimated a multi-level moderated mediation path-model in Mplus version 7.11 (Muthén & Muthén, 2012). This model (see Figure 1) included interaction terms between supplementary and complementary fit on the individual and the team level. Both fit variables were group-mean centered prior to computing the interaction term at the individual level. The aggregated supplementary and complementary fit variables were grand-mean centered prior to computing the interaction term at the team level. Team cohesion was treated as a mediator at the individual and the team level. While our hypotheses only considered team cohesion as a mediator at the team level, it is necessary to examine its mediating role at both levels to disentangle within- from between-variance (Preacher, Zhang, Zyphur, 2011). At the individual level, we considered team satisfaction and team viability as the dependent variables; at the team level, we examined team satisfaction, team viability, and the grade assigned to each team as dependent variables. The dependent variables were not allowed to covary, to avoid having a just-identified model, with the exception of the covariance between team satisfaction and team

viability at the individual level. This was done because prior research suggests that viability and satisfaction are strongly related, as they both share an affective component (Balkundi & Harrison, 2006). We controlled for group size at the team level.

We estimated a full mediation model (no direct effects) and a partial mediation model (direct and indirect effects). The full mediation model ($\chi^2(18)=21.02$, $p=.79$, RMSEA=.04, CFI=.99, TLI=.99) offered a good fit to the data, whereas the partial mediation model did not offer a good fit to the data in terms of RMSEA and TLI values ($\chi^2(3)=42.61$, $p<.05$, RMSEA=.37, CFI=.91, TLI=.00). Although the fit of the full mediation model was not significantly better than that of the partial mediation model ($\Delta\chi^2(15)=21.59$, p=.12), we opted to focus on the full mediation model as it was more parsimonious and as the partial mediation model did not fit well to the data[4]. Table 3 shows the unstandardized path estimates of the full mediation model, at the individual and the team level. Hypotheses 1 (a & b) concerned the interaction effect of individual-level supplementary and complementary fit on satisfaction and viability. Given that the full mediation model offered a better fit to the data than the partial mediation model, there were no direct effects of supplementary and complementary fit on satisfaction and viability at the individual level. Hypothesis 1 could therefore not be supported. However, supplementary fit was significantly positively related to team cohesion ($\gamma=.63$, $z=209.39$, $p<.001$). Moreover, this relationship between supplementary fit and team cohesion was moderated by complementary fit ($\gamma=-.49$, $z=-2.38$, $p=.02$). Team cohesion, in turn, was significantly positively related to team satisfaction ($\gamma=.26$, $z=10.50$, $p<.001$) and team viability ($\gamma=.26$, $z=3.99$, $p<.001$). Hypotheses 2 (a, b, & c) concerned the indirect effect of team-level supplementary fit on team performance, satisfaction, and viability—via team cohesion—conditional on team-level complementary fit. As can be seen in Table 3, there was a significant

negative main effect of complementary fit on team cohesion (γ=-.88, z=-3.54, p<.001), as well as a significant positive interaction effect of both fit types on team cohesion (γ=.29, z=6.07, p<.001). Team cohesion, in turn, was positively related to team satisfaction (γ=.77, z=9.39, p<.001), team viability (γ=.91, z=4.59, p<.001), and to the grade assigned to the team (γ=.88, z=45.18, p<.001).

Insert Table 3 about here

We probed the individual-level and team-level interaction effects of supplementary and complementary fit on team cohesion to assess if the interaction effects were in the hypothesized direction, by calculating simple slopes at various values of the moderator (very low=2SD below the mean, low=1SD below the mean, average=mean, high=1SD above the mean, very high=2SD above the mean) (Preacher, Curran, & Bauer, 2006). At the individual level, this analysis revealed that supplementary fit had the strongest positive relationship with team cohesion when complementary fit was very low (est.=1.30, z=4.59, p<.001). This positive relationship gradually became weaker when complementary fit went from low (est.=.97, z=6.76, p<.001), over average (est.=.63, z=209.39, p<.001), to high (est.=.30, z=2.18, p=.03); and eventually was no longer significant for very high values of complementary fit (est.=-.04, z=-.13, p=.90). Figure 2 shows the simple slopes of the relationship between supplementary fit and team cohesion at the individual level, for very low, low, average, high, and very high values of complementary fit. To improve our understanding of the interaction effect between supplementary and complementary fit on team cohesion, we also estimated the simple slopes of the relationship between complementary fit and team cohesion for various levels of supplementary fit (see Figure 3). As can be seen in this figure, complementary fit has a significant positive relationship with team cohesion when supplementary fit is very low (est.=.62, z=2.72, p=.007) or low (est.=.31, z=3.15,

p=.002), a non-significant relationship when supplementary fit is average (est.=.01, *z*=.28, *p*=.78) or high (est.=-.30, *z*=-1.90, *p*=.06), and a negative significant relationship when supplementary fit is very high (est.=-.60, *z*=-2.12, *p*=.03).

Insert Figure 2 and 3 about here

At the team level, probing the simple slopes showed that there was a positive relationship between supplementary fit and team cohesion, when complementary fit was very high (est.= .25, *z*=6.88, *p*<.001). The relationship between supplementary fit and team cohesion at the team level was not significant for high (est.=.05, *z*=.72, *p*=.47) and average (est.=-.15, *z*=-1.47, *p*=.14) values of complementary fit and was negative and significant for low (est.=-.35, *z*=-2.59, *p*=.01) and very low (est.=-.56, *z*=-3.27, *p*=.001) values of complementary fit. Further analysis revealed that the relationship between supplementary fit and team cohesion became positive and significant when complementary fit was 1.33 SD above the mean. Figure 4 shows the simple slopes of the relationship between supplementary fit and team cohesion at the team level, for very low, low, average, high, and very high values of complementary fit.

Insert Figure 4 about here

Finally, we assessed the conditional indirect effects at the individual and the team level. This means that we computed the indirect effect of supplementary fit on satisfaction, viability, and the grade assigned to the team (only at the team level), for very low, low, average, high, and very high values of complementary fit. We calculated these indirect effects based on the product-of-coefficients approach and tested their significance using the delta-method (Preacher, Zyphur, & Zhang, 2010). At the individual level, there were significant and positive indirect effects of supplementary fit on satisfaction, via team cohesion, for very low, low, and average values of complementary fit. There were no significant indirect effects of supplementary fit on satisfaction,

via team cohesion, for high and very high values of complementary fit. Likewise, there were significant and positive indirect effects of supplementary fit on viability, via team cohesion, for very low, low, and average levels of complementary fit, but no significant indirect effect of supplementary fit on viability, via team cohesion, for high and very high levels of complementary fit.

At the team-level, there was a significant and positive indirect effect of supplementary fit on team satisfaction, via team cohesion, for very high values of complementary fit. There was no significant indirect effect of supplementary fit on team satisfaction, via team cohesion, for high and average levels of complementary fit, and a significant negative indirect effect for low and very low levels of complementary fit. Likewise, there was a significant and positive indirect effect of supplementary fit on team viability, via team cohesion, for very high values of complementary fit. There was no significant indirect effect of supplementary fit on team satisfaction, via team cohesion, for high levels of complementary fit, and a significant negative indirect effect for average, low and very low levels of complementary fit. Finally, there was a significant and positive indirect effect of supplementary fit on the grade assigned to the teams, via team cohesion, for very high values of complementary fit. There was no significant indirect effect of supplementary fit on the assigned grade, via team cohesion, for high and average levels of complementary fit, and a significant negative indirect effect for low and very low levels of complementary fit. In sum, these conditional indirect effects offer support for Hypotheses 2a, 2b, and 2c.

Insert Table 4 about here

Power analysis

We performed a post-hoc Montecarlo simulation (with 1000 replications) to check the power of our analysis on the individual- and the team-level (Muthén & Muthén, 2012). At the individual-level, we, on average, had sufficient power to detect small (.74) and medium-to-large (1) effect sizes. At the team-level, we, on average, had adequate power (.83) to detect large effect sizes, whereas we had low power to detect small (.26) or medium (.55) effect sizes.

Discussion

Using a multi-level design, the aim of this study was to unravel the impact of subjective (dis)similarities in teams on team outcomes, including satisfaction, viability, and performance. In particular, we focused on combined effects of individual and shared perceptions of supplementary and complementary person-team fit on team effectiveness. In doing so, our study presents two major contributions to the literature on person-environment fit and teams. First, we demonstrate that the interaction between perceptions of supplementary and complementary fit matters in predicting outcomes, and this applies to both individual and shared perceptions of fit. However, the particular direction of the effects diverges, and the findings supported our hypotheses only at the team level. We thus can conclude that whereas prior studies focused almost exclusively on supplementary fit, supplementary and complementary fit form distinct dimensions, both of which merit attention as their interactive effects explain the outcomes at the team level (see also Piasentin and Chapman's (2007) view on both types of fit; i.e., considering supplementary and complementary on common dimensions, namely personality, values, skills, abilities, competencies, perspectives, and knowledge, opposed to the traditional distinction between value/goal/personality congruence as supplementary fit and demands-abilities and needs-supplies fit as complementary fit). Second, with different effects at the individual as compared to the team level, we demonstrate the relevance of a group-level fit measure and

emphasize that a multi-level perspective is required to fully understand the relationships between person-team fit and outcomes. However, the literature to date has predominantly considered person-team fit from the individual's perspective (e.g., Oh et al., 2014), with some recent exceptions by Seong and Kirstof-Brown (Kristof-Brown et al., 2014; Seong & Choi, 2014; Seong et al., 2012). We first discuss the effects found on the individual level and the team level and then elaborate on theoretical and practical consequences of these findings.

At the individual level, we hypothesized direct effects of high supplementary fit combined with high complementary fit on team attitudes. However, results indicate that the effects of supplementary and complementary fit are fully mediated by team cohesion. Moreover the results are not in the expected direction in that supplementary fit (i.e., the feeling of fitting in by being similar) only has a positive impact when complementary fit (i.e., the feeling of fitting in by being unique) is low, and vice versa. Subsequently, these perceptions of high team cohesion are positively related to individuals' satisfaction with and viability of the team. Hence, when supplementary fit increases, then team cohesion also increases if complementary fit is low, and when complementary fit increases, then team cohesion increases when supplementary fit is low. This finding is not in line with our first hypothesis based on ODT (Brewer, 1991) where we assumed that high complementary fit would strengthen the positive effect of high supplementary fit. However, it does extend the dominant stream in PE fit literature theorizing and proving a positive relationship between supplementary fit (i.e., similarities) and attitudinal outcomes (e.g., Kristof-Brown et al., 2005b, Oh et al., 2014) by specifying that this positive relationship peaks in case of low complementary fit. Moreover, the interaction effect corresponds to an earlier finding by Piasentin and Chapman (2007) who linked their supplementary and complementary fit scales to an overarching perceived fit scale and conclude that high complementary fit compensates in

case of low supplementary fit. Based on our results, we thus conclude that for a team member's sense of team cohesion it is important to perceive either high supplementary or high complementary fit. Additionally, this team cohesion positively influences team satisfaction and team viability.

At the team level, we formulated a mediated moderation hypothesis, arguing that the interaction between the teams' shared perceptions of supplementary and complementary fit would be related to team effectiveness through a positive effect on team cohesion. We found a similar interaction pattern for all three outcomes. In accordance with the social inclusion model (Shore et al., 2011), teams in which members share perceptions of high supplementary and high complementary fit reported higher levels of team cohesion, which produced higher levels of performance, satisfaction, and viability than teams who perceived merely high levels on one type of fit. These findings offer support for the hypothesis at the team level and the idea of team inclusion. When a team contains members who all feel accepted and feel that their unique characteristics are valued, the team becomes vastly more cohesive because all members feel thoroughly included in the team and are highly motivated to collaborate and function as a team. They, thus, see the added value of the team for attaining the collective assignment.

Comparing both levels of analyses, the findings suggest that at the individual level perceptions of supplementary fit or complementary fit compensate each other, indicating that when one is absent, the other compensates in predicting team cohesion and team-related attitudes, while at the team level the combination of complementary and supplementary fit is necessary in order to yield high team cohesion and reach team effectiveness. The social inclusion model as an extension of ODT permits an explanation of the team-level effects but not the individual-level effects. For an individual it seems important to feel highly similar and accepted

or highly complementary and unique, but not both. A possible explanation here may come from role theory (Biddle, 1979) in that feeling both types of fit confuses someone about his or her specific role in a group, for example, by behaving both as a coordinator assimilating the team (i.e., social roles) and as a questioner offering a unique and distinctive perspective (i.e., a task role). Having task and social roles at the same time may cause role ambiguity, which in role theory is considered to have important consequences for the performance and success of groups (Rizzo, House & Lirtzman, 1970) and has previously been linked to an individual's perception of team cohesion (Eys & Carron, 2001). Team outcomes, however, are a product of the interaction of team members, not simply the aggregated outputs of individuals who perform tasks independently. For team effectiveness it seems important that team members share a perception of high similarity and high complementarity at the same time. This supports the idea of team inclusion and may also be explained by role theory, in particular by theories focusing on team composition (e.g., Belbin, 1993; Partington & Harris, 1999). Whereas individuals need role clarity, team composition models emphasize team member diversity in terms of roles played in a team and, Belbin (1993) for instance put forward the team role balance hypothesis, which states that high performing teams need to display multiple roles and that individuals may display two or three roles. Hence, although a combination of high complementary and supplementary fit may cause role ambiguity on the individual level, it may be beneficial to take up multiple roles and collectively perceive high supplementary as well as high complementary fit. Based on our findings we thus emphasize the importance of distinguishing the role of fit on multiple levels of analysis, namely the individual and the team level, as effects do not appear to be homologous across levels. In order to further disentangle these relationships it may be relevant to include role ambiguity as a mediator at the individual level.

Also related to the multilevel design of this study, ample research in the person-environment fit domain demonstrated links between person-team fit and individual outcomes (e.g., Kristof-Brown et al., 2005b), which our results empirically support for team satisfaction and viability. However, our results further suggest that person-team fit – and especially the combined effects of supplementary and complementary fit – is relevant in explaining collective team attitudes and performance.

Limitations

Despite a number of strengths we also need to acknowledge certain limitations of our study. First, our sample size at the individual and the team level was relatively small. While it provided sufficient power to detect small, medium, and large effects at the individual level, at the team level, the smaller sample size resulted in sufficient power to detect large effects, but low power to detect small and medium effects. Fortunately, the majority of the obtained effect sizes at the team level were large. Relatedly, due to the fact that the study participants were students performing a group project, it might be a bold move to generalize the findings as transferrable into an organizational context where teams are more often than not diverse in terms of not only race, gender, and age, but also previous work experience. Hence, we recommend future studies to address these shortcomings by replicating our findings in an organizational setting and, if feasible, in a larger sample. Second, we chose to implement a direct consensus composition model (Chan, 1998), as we were interested in shared perceptions of fit at the team level. We made sure that all statistical criteria were met before aggregating the supplementary and complementary fit measures to the team level. Nevertheless, other composition models could also be applied and may offer unique insights into the role of fit at the team level. For example, a process model would enable scholars to ascertain how perceptions of fit emerge over time in

teams (Kozlowski, Chao, Grand, Braun, & Kuljanin, 2013). This would require frequent measurements of fit (e.g., daily diary design) from the moment that teams are formed. The intergroup agreement could be calculated for each measurement moment to assess the extent to which team members share fit perceptions. Such research could unravel the speed with which fit perceptions become shared and could investigate factors that affect this speed (e.g., objective fit). Third, it is possible that certain third variables may affect the relationships in our model. However, by randomly assigning participants to teams, we tried to reduce the influence of third variables. Nonetheless, further research may advance our knowledge of person-team fit by including moderators (e.g., familiarity with the task or friendship relations among team members) or other mediators (e.g., intergroup conflict). Finally, attention was paid to reduce the influence of common method variance (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). We separated the measurement of independent and dependent variables in time to reduce measurement context effects. In addition, team performance was rated by a third-party to reduce common rater effects. Moreover, we assessed the presence and influence of common method variance by using a marker variable analysis (Williams et al., 2010). The results of this analysis suggest that common method variance is present, but does not influence the relationships between the latent variables in our model.

Implications for future research

Further research incorporating individual and collective fit and individual and collective outcomes is required to validate this novel feature of person-team fit. Above and beyond remedying the limitations of our study in future research, we believe that our results open up new avenues for further research endeavors. First, if team members share fit perceptions, a natural next step would be to examine how these shared perceptions come about. Such research would

be in line with Kozlowski and colleagues' (Kozlowski et al., 2013) call for more research on the emergence of phenomena. This research focus was recently initiated by Seong and Choi (2014) who demonstrated a significant role of group positive affect in predicting group-level fit perceptions. However, more aspects of the emergence of shared fit perceptions could be tested. For example, individual differences (e.g., disposition to trust) of team members may accelerate or hinder the formation of shared perceptions. Moreover, contextual factors, such as the number of opportunities that team members have to interact with each other, may impact the speed by which fit perceptions become shared.

Second, follow-up studies could further examine the process by which supplementary and complementary person-team fit influence outcomes. In a recent study, Seong and Choi (2014) emphasized the role of group conflict as an important mediator in the relationship between group-level fit and group performance. This and other mediators, such as trust and communication (Marks, Mathieu, & Zaccaro, 2001) could be integrated into the research model and add to the findings based on team cohesion as a mediator. Besides the effect through team cohesion, the social inclusion model (Brewer, 1991; Shore et al., 2011) suggests that an inclusive climate leads to positive outcomes because it reduces conflict in teams, fosters trust between team members, and improves decision-making quality due to team members being exposed to multiple perspectives. Including these variables as mediators would allow for additional empirical verification of these theories. Furthermore, it is worth pursuing research on the effectiveness of specific HR practices that aim to balance fit so that team members feel psychological safety from similarity and maintain a degree of individuality (without for example experiencing role ambiguity).

Third, we focused on general perceptions of supplementary and complementary person-team fit. However, as Seong and Kristof-Brown (2012) demonstrated, the different dimensions of supplementary and complementary person-team fit (e.g., values, personality, abilities, knowledge) could be taken into consideration separately. The effect of supplementary and complementary fit on outcomes may depend on the dimension of fit under consideration. Global (multidimensional) assessment of fit may relate more strongly to broad-based outcomes, like satisfaction with the team, compared to specific dimensions of fit.

Fourth, to get a grip on what change may imply for person-team and person-environment fit perceptions, future studies could examine whether perceptions of fit change over time along with changes in the person or the environment or in particular in relation to group development (e.g., forming, storming, norming, and performing stages), whether these changes in fit perceptions impact outcomes, and whether reactions to fit change over time. Therefore a dynamic view on fit is required.

Practical implications

Obviously, this study also has significant implications for personnel management and companies' HR practices. First, as Piasentin and Chapman (2007) propose, it is important to consider both supplementary and complementary person-team fit when selecting new team members. Organizations often pursue one of two strategies when selecting employees (Powell, 1998). They may either choose to reinforce supplementary fit by selecting employees with characteristics that are similar to those of other team members (or do so unconsciously through selection bias in recruitment), or they may decide to extend complementary fit by selecting employees with characteristics that add to those of other team members. However, from a team perspective, based on our results we would recommend that organizations pursue a mix of both

strategies (Seong et al., 2012). For example, while selecting employees, attention could be paid to the extent to which the employee resembles other team members with regard to certain characteristics (e.g., personality) and complements other team members with regard to other characteristics (e.g., knowledge). Deciding which characteristics require similarity or complementarity may depend upon the objectives of the team. Second, our findings suggest that besides individual perceptions, shared perceptions of supplementary and complementary fit are indeed relevant for team outcomes. Hence, organizations need to ensure that the necessary conditions are present for these shared perceptions to emerge. In general, repeated social interactions are likely to expedite this process (Klein & Kozlowski, 2000). Consequently, organizations ought to provide ample opportunities for team members to interact. For example, team-building activities could be organized, as these would enable team members to observe each other's characteristics in a non-work setting (Klein et al., 2009). Finally, although the current study did not focus on the role of leaders, they may play a crucial role in the emergence of shared perceptions of supplementary and complementary fit (Seong & Choi, 2014). By providing regular feedback, leaders could emphasize that team members both supplement and complement each other. Moreover, they may clarify this to the team members themselves, for instance, by emphasizing that a team member not just possesses a unique characteristic, but that this unique characteristic is valuable for the team. Hence, team leaders may be important in ensuring that team members share perceptions of high complementarity rather than perceptions of high heterogeneity.

Conclusion

The current study investigated the combined impact of perceived supplementary and complementary person-team fit on team effectiveness. In line with optimal distinctiveness theory

(Brewer, 1991) and the social inclusion model (Shore et al., 2011), we showed that the interaction between both fit types is key when investigating shared perceptions of person-team fit and their impact on team effectiveness. Teams with an inclusive climate—that is, teams in which members share perceptions of high supplementary and high complementary fit—are most effective via their high levels of team cohesion. At the individual level this enhancing effect of the interaction could not be supported and both types of fit compensate each other in predicting outcomes. These non-homologous effects across levels emphasize the importance of distinguishing the role of fit on multiple levels of analysis.

References

Aumann, K. A., & Ostroff, C. (2006). Multi-level fit: an integrative framework for understanding hrm practices in cross-cultural contexts. *Research in Multi-Level Issues, 5,* 13-79. doi: 10.1016/S1475-9144(06)05002-8

Balkundi, P., & Harrison, D. A. (2006). Ties, leaders, and time in teams: Strong inference about network structure's effects on team viability and performance. *Academy of Management Journal*, *49*, 49-68. doi: 10.5465/AMJ.2006.20785500

Belbin, R. M. (1993). *Team Roles at Work*. Oxford: Butterworth-Heinemann.

Biddle, B. J. (1979). Role *theory: Expectations, Identities, and Behaviors* (pp. 55-86). New York, NY: Academic Press.

Bowers, C. A., Pharmer, J. A., & Salas, E. (2000). When member homogeneity is needed in work teams: A meta-analysis. *Small Group Research*, *31*, 305-327. doi: 10.1177/104649640003100303

Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin, 17,* 475-482. doi: 10.1177/0146167291175001

Byrne, D. (1971). *The attraction paradigm.* New York, NY: Academic Press.

Cable, D. M., & Edwards, J. R. (2004). Complementary and supplementary fit: a theoretical and empirical integration. *Journal of Applied Psychology, 89,* 822-834. doi: 10.1037/0021-9010.89.5.822

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology, 83*, 234-246. doi: 10.1037/0021-9010.83.2.234

Chatman, J. A. (1989). Improving interactional organizational research: A model of person–

organization fit. *Academy of Management Review, 14,* 333–349. doi: 10.5465/AMR.1989.4279063

Cho, S., & Mor Barak, M. E. (2008). Understanding of diversity and inclusion in a perceived homogeneous culture: A study of organizational commitment and job performance among Korean employees. *Administration in Social Work, 32*, 100-126. doi: 10.1080/03643100802293865

DeRue, D. S., & Hollenbeck, J. R. (2007). The search for internal and external fit in teams. In C. Ostroff & T.A. Judge (eds.). *Perspectives on Organizational Fit* (pp 259-285). New York, NY: Erlbaum.

Edwards, J. R., & Shipp, A. J. (2007). The relationship between person-environment fit and outcomes: An integrative theoretical framework. In C. Ostroff & T.A. Judge (eds.). *Perspectives on Organizational Fit* (pp 209-238). New York, NY: Erlbaum.

Ehrhart, M. G. (2004). Leadership and procedural justice climate as antecedents of unit-level organizational citizenship behavior. *Personnel Psychology, 57*, 61-94. doi: 10.1111/j.1744-6570.2004.tb02484.x

Eys, M.A., & Carron, A.V. (2001). Role ambiguity, task cohesion, and task self-efficacy. *Small Group Research, 32*, 356-373. doi: 10.1177/104649640103200305

Ferdman, B. M., Avigdor, A., Braun, D., Konkin, J., & Kuzmycz, D. (2010). Collective experience of inclusion, diversity, and performance in work groups. RAM. *Revista de Administração Mackenzie*, *11*, 6-26. doi: 10.1590/S1678-69712010000300003

Guan, Y., Deng, H., Risavy, S. D., Bond, M. H., & Li, F. (2011). Supplementary Fit, Complementary Fit, and Work-Related Outcomes: The Role of Self-Construal. *Applied Psychology*, *60*, 286-310. doi: 10.1111/j.1464-0597.2010.00436.x

Gully, S. M., Devine, D. J., & Whitney, D. J. (1995). A meta-analysis of cohesion and performance effects of level of analysis and task interdependence. *Small Group Research, 26,* 497-520. doi: 10.1111/j.1464-0597.2010.00436.x

Halfhill, T., Sundstrom, E., Lahner, J., Calderone, W., & Nielsen, T. M. (2005). Group personality composition and group effectiveness: An integrative review of empirical research. *Small Group Research, 36,* 83-105. doi: 10.1111/j.1464-0597.2010.00436.x

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 55. doi: 10.1111/j.1464-0597.2010.00436.x

Jansen, K.J., & Kristof-Brown, A. (2006). Toward a multidimensional theory of person-environment fit. *Journal of Managerial Issues, 18,* 193-212.

Jansen, W. S., Otten, S., Zee, K. I., & Jans, L. (2014). Inclusion: Conceptualization and measurement. *European Journal of Social Psychology*. doi: 10.1002/ejsp.2011

Klein, C., DiazGranados, D., Salas, E., Le, H., Burke, C. S., Lyons, R., & Goodwin, G. F. (2009). Does team building work? *Small Group Research, 40,* 181–222. doi: 10.1177/1046496408328821

Klein, K. J., & Kozlowski, S. W. J. (2000). A multilevel approach to theory and research in organizations contextual, temporal, and emergent processes. In S. W. J. Kozlowski & K. J. Klein (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). San Francisco, CA: Jossey-Bass.

Kozlowski, S. W. J., Chao, G. T., Grand, J. A., Braun, M. T., & Kuljanin, G. (2013). Advancing multilevel research design: Capturing the dynamics of emergence. *Organizational Research Methods, 16,* 581–615. doi: 10.1177/1094428113493119

Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49,* 1-49. doi: 10.1111/j.1744-6570.1996.tb01790.x

Kristof-Brown, A., Barrick, M. R., & Stevens, C. K. (2005a). When opposites attract: A multi-sample demonstration of complementary person-team fit on extraversion. *Journal of Personality, 73,* 935-958. doi: 10.1111/j.1467-6494.2005.00334.x

Kristof-Brown, A. L., & Guay, R. P. (2011). Person-environment fit. In S. Zedeck (Ed.), *APA Handbook of Industrial and Organizational Psychology* (vol. 3, pp. 3-50). Washington, DC: American Psychological Association.

Kristof-Brown, A.L., Zimmerman, R.D., & Johnson, E.C. (2005b). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology, 58,* 281-342. doi: 10.1111/j.1744-6570.2005.00672.x

Kristof-Brown, A. L., Seong, J. Y., Degeest, D. S., Park, W. W., & Hong, D. S. (2014). Collective fit perceptions: A multilevel investigation of person–group fit with individual-level and team-level outcomes. *Journal of Organizational Behavior, 35,* 969-989. doi: 10.1002/job.1942

Mannix, E., & Neale, M. A. (2005). What differences make a difference? The promise and reality of diverse teams in organizations. *Psychological Science in the Public Interest. 6,* 31-55. doi: 10.1111/j.1529-1006.2005.00022.x

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26,* 356-376. doi: 10.5465/AMR.2001.4845785

Muchinsky, P. M., & Monahan, C. J. (1987). What is person-environment congruence?

Supplementary versus complementary models of fit. *Journal of Vocational Behavior*, *31,* 268-277. doi: 10.1016/0001-8791(87)90043-1

Muthén, L.K., & Muthén, B.O. (2012). *Mplus User's Guide. Seventh Edition*. Los Angeles, CA: Muthén & Muthén.

Oh, I. S., Guay, R. P., Kim, K., Harold, C. M., Lee, J. H., Heo, C. G., & Shin, K. H. (2014). Fit Happens Globally: A Meta-Analytic Comparison of the Relationships of Person–Environment Fit Dimensions with Work Attitudes and Performance Across East Asia, Europe, and North America. *Personnel Psychology*, *67*, 99-152. doi: 10.1111/peps.12026

Ostroff, C. (2012). Person-environment fit in organizational settings. In S.W.J. Kozlowski (Ed.) *The Oxford Handbook of Organizational Psychology* (pp 373-408). New York, NY: Oxford University Press.

Partington, D., & Harris, H. (1999). Team role balance and team performance: an empirical study. *Journal of Management Development, 18,* 694-705. doi: 10.1108/02621719910293783

Piasentin, K. A., & Chapman, D. S. (2007). Perceived similarity and complementarity as predictors of subjective person-organization fit. *Journal of Occupational and Organizational Psychology*, *80,* 341-354. doi: 10.1348/096317906X115453

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88,* 879. doi: 10.1037/0021-9010.88.5.879

Powell, G. N. (1998). Reinforcing and extending today's organizations: The simultaneous pursuit of person-organization fit and diversity. *Organizational Dynamics, 26,* 50-61. doi: 10.1016/S0090-2616(98)90014-6

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437. doi: 10.3102/10769986031004437

Preacher, K. J., Zhang, Z., & Zyphur, M. J. (2011). Alternative methods for assessing mediation in multilevel data: The advantages of multilevel SEM. *Structural Equation Modeling, 18,* 161-182. doi: 10.1080/10705511.2011.557329

Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods, 15,* 209-233. doi: 10.1037/a0020141 209

Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organizations. *Administrative Science Quarterly, 15,* 150-163.

Salas, E., Goodwin, G. F., & Burke, C. S. (2008). *Team Effectiveness in Complex Organizations: Cross-disciplinary Perspectives and Approaches*. Mahwah, NJ: Lawrence Erlbaum Associates.

Schneider, B. (1987). The people make the place. *Personnel Psychology, 40,* 437-453. doi: 10.1111/j.1744-6570.1987.tb00609.x

Schneider, B., & Reichers, A. E. (1983). On the etiology of climates. *Personnel Psychology, 36,* 19-39. doi: 10.1111/j.1744-6570.1983.tb00500.x

Seong, J. Y., & Choi, J. N. (2014). Effects of group-level fit on group conflict and performance: The initiating role of leader positive affect. *Group and Organization Management, 39,* 190-212. doi: 10.1177/1059601113517138

Seong, J.Y., & Kristof-Brown, A.L. (2012). Testing multidimensional models of person-group fit. *Journal of Managerial Psychology, 27,* 536-556. doi: 10.1108/02683941211252419

Seong, J.Y., Kristof-Brown, A.L., Park, W.W., Hong, D.S., & Shin, Y. (2012). Person-group fit: Diversity antecedents, proximal outcomes, and performance at the group level. *Journal of Management, online first,* 1-31. doi: 10.1177/0149206312453738

Shore, L. M., Randel, A. E., Chung, B. G., Dean, M. A., Ehrhart, K. H., & Singh, G. (2011). Inclusion and diversity in work groups: A review and model for future research. *Journal of Management, 37,* 1262-1289. doi: 10.1177/0149206310385943

Simons, T., & Roberson, Q. (2003). Why managers should care about fairness: The effects of aggregate justice perceptions on organizational outcomes. *Journal of Applied Psychology, 88,* 432–443. doi: 10.1037/0021-9010.88.3.432

Tekleab, A. G., Quigely, N. R., & Tesluk, P. E. (2009). A longitudinal study of team conflict, conflict management, cohesion, and team effectiveness. *Group & Organization Management*, *34*, 170-205. doi: 10.1177/1059601108331218

Vogel, R. M., & Feldman, D. C. (2009). Integrating the levels of person-environment fit: The roles of vocational fit and group fit. *Journal of Vocational Behavior, 75,* 68-81. doi: 10.1016/j.jvb.2009.03.007

Webber, S. S., & Donahue, L. M. (2001). Impact of highly and less job-related diversity on work group cohesion and performance: A meta-analysis, *Journal of Management, 27,* 141-162. doi: 10.1177/014920630102700202

Williams, L. J., Hartman, N., & Cavazotte, F. (2010). Method variance and marker variables: A review and comprehensive CFA marker technique. *Organizational Research Methods, 13,* 477–514. doi: 10.1177/1094428110366036

Footnotes

[1] Items refer to personality as well as to values, skills, abilities, competencies, perspectives and knowledge.

[2] Although this scale was originally designed to measure person-group fit, a number of experts in the fit domain evaluated its validity in measuring team member satisfaction and all agreed that these items (i.e., Working with the other people in my group is one of the best parts of this job; I get along well with the people I work with on a day-to-day basis; There is not much conflict among the members of my group; If I had more free time, I would enjoy spending more time with my co-workers socially; There are some people I work with I try to avoid when possible) do indeed reflect relevant aspects of team member satisfaction. Moreover, correlation coefficients indicate that the scale is only moderately related to both types of fit ($r = .28$ with supplementary fit & $r = .24$ with complementary fit).

[3] These items were: 'He strongly believes that people should care for nature. Looking after the environment is important to him'. 'He believes all the worlds' people should live in harmony. Promoting peace among all groups in the world is important to him'. 'It is important to him to adapt to nature and to fit into it. He believes that people should not change nature'.

[4] Comparing estimates from the partial mediation model to those of the full mediation model revealed that both models led to similar conclusions, with two exceptions. First, there was no statistically significant relationship between team cohesion and team satisfaction (γ=.80, p=.20) at the team level; instead, there was a statistically significant negative relationship between supplementary fit and team satisfaction (γ=-.26, p<.001) at the team level. Second, next to a statistically significant positive relationship between team cohesion and team performance (γ=.63, p=.006) at the team level, we found statistically significant

relationships between supplementary fit (γ=-1.81, $p<.001$), complementary fit (γ=-1.82, $p<.001$), and the interaction between both (γ=2.77, $p<.001$) on the one hand and team performance on the other hand at the team level.

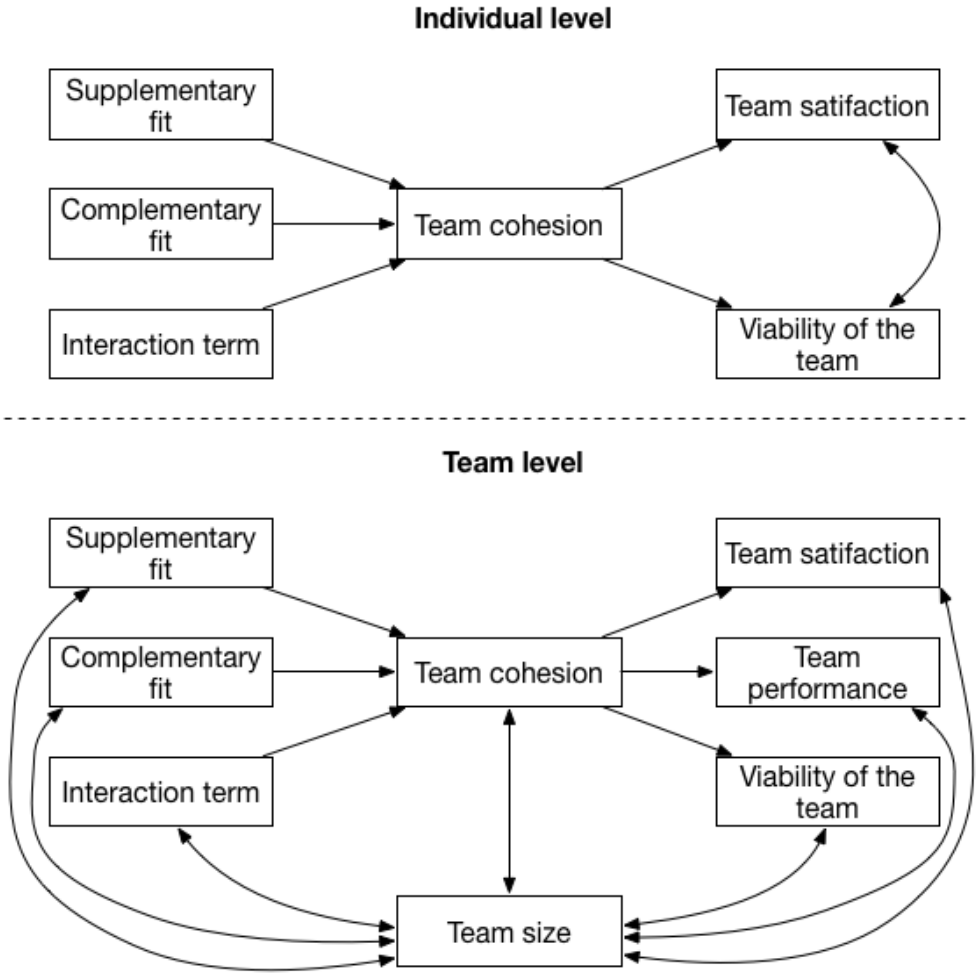

Figure 1. Overview of estimated model at the individual and the team level.

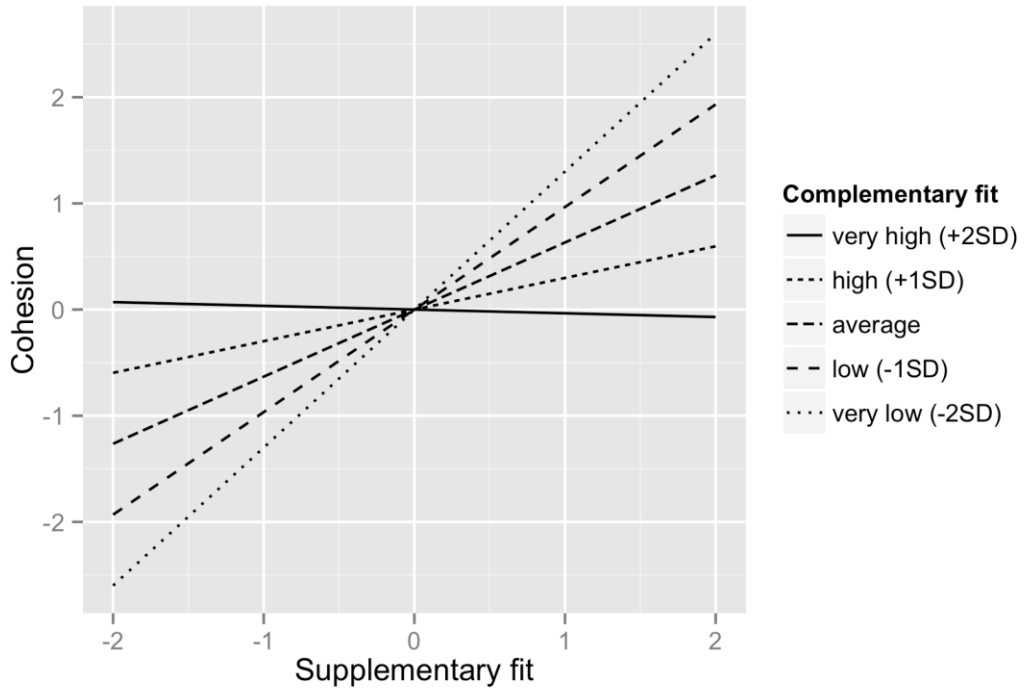

Figure 2. Simple slopes of relationship between supplementary fit and cohesion for various levels of complementary fit, at the individual-level.

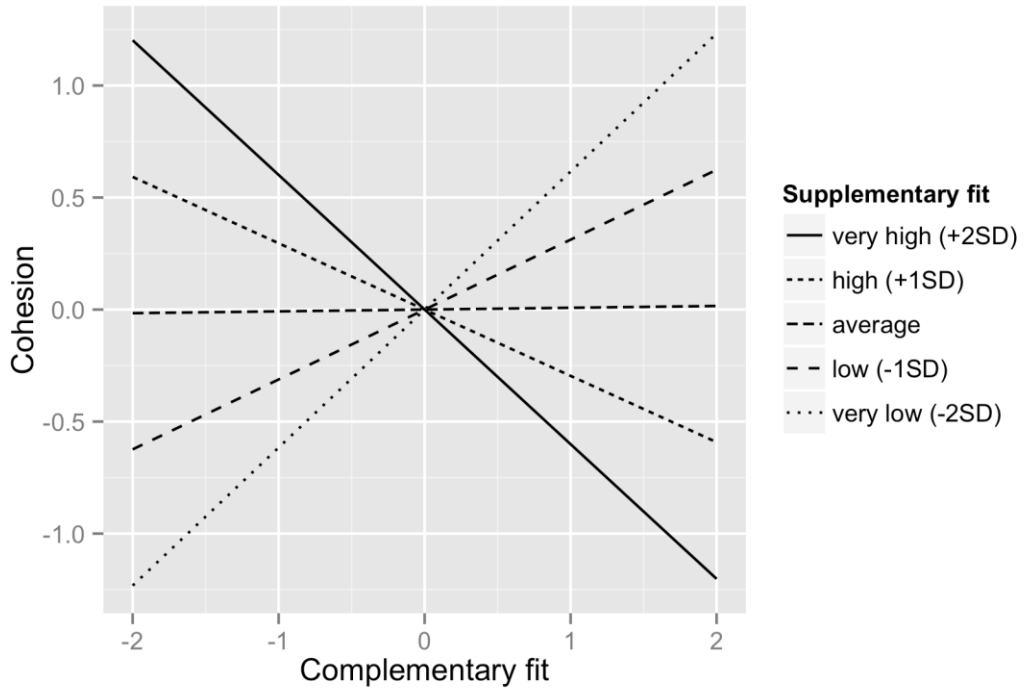

Figure 3. Simple slopes of relationship between complementary fit and cohesion for various levels of supplementary fit, at the individual-level.

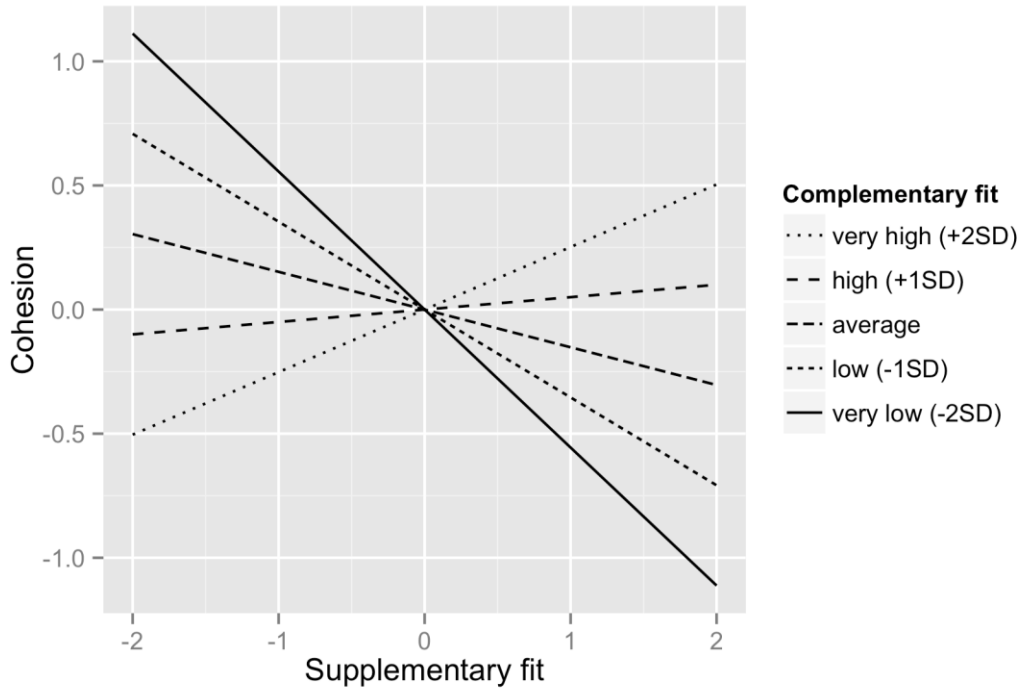

Figure 4. Simple slopes of relationship between supplementary fit and cohesion for various levels of complementary fit, at the team-level.

Table 1

Model fit indices and model comparisons for estimated CFA models

	Model	Chi-square (df)	CFI	TLI	RMSEA	Chi-square difference	Model comparison
	CFA models:						
A	5-factor model	438.64 (263)	.94	.94	.08		
B	4-factor model 1	668.47 (269)	.87	.85	.12	229.83 (6) ***	vs. 5-factor model
C	4-factor model 2	456.55 (267)	.94	.93	.08	17.91 (4) **	vs. 5-factor model
D	3-factor model	645.03 (270)	.88	.87	.11	206.39 (7) ***	vs. 5-factor model
E	1-factor model	979.48 (273)	.78	.75	.15	540.84 (10) ***	vs. 5-factor model
	CFA models with marker variable:						
F	CFA with marker variable	528.58 (335)	.94	.93	.07		
G	Baseline model	571.37 (357)	.93	.93	.07		
H	Method-C	562.62 (356)	.93	.93	.07	8.75 (1) **	vs. baseline
I	Method-U	507.87 (332)	.94	.94	.07	54.75 (24) ***	vs. Method-C
J	Method-R	468.36 (342)	.96	.96	.06	39.51 (10) ***	vs. Method-U

Table 2

Means, standard deviations, zero-order correlations, and internal reliability estimates of the focal variables in the study

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Supplementary fit individual-level	4.34	.91	(.75)								
2. Complementary fit individual-level	4.16	.95	.14	(.86)							
3. Cohesion	4.54	1.34	.47***	.08	(.94)	.91***	.92***	.87***	.41*	.57**	.26
4. Satisfaction	4.55	1.14	.16	-.01	.30***	(.83)	.82***	.79***	.43*	.64***	.30
5. Viability	5.18	1.39	.10	-.07	.22*	.73***	(.88)	.73***	.28	.50**	.18
6. Supplementary fit team-level	4.33	.65						(.61)	.34	.38*	.05
7. Complementary fit team-level	4.17	.66							(.60)	.06	-.23
8. Grade assigned to team	5.74	1.39									.31
9. Group size	4.24	.86									

Note. * p<.05, ** p<.01, *** p<.001. Team-level correlations above the diagonal, individual-level correlations below the diagonal, internal reliability estimates on the diagonal between parentheses.

Table 3

Unstandardized estimates of full mediation path analysis model

Independent variable	Mediating variable	Dependent variables		
	Cohesion	Team satisfaction	Team viability	Grade assigned to team
Individual-level estimates:				
Supplementary fit	.63***			
Complementary fit	.01			
Interaction term	-.49*			
Cohesion		.26***	.26***	
Team-level estimates:				
Supplementary fit	-.17			
Complementary fit	-.88***			
Interaction term	.29***			
Group size	.22***	.03	-.07	.30
Cohesion		.77***	.91***	.88***

Note. * $p<.05$, ** $p<.01$, *** $p<.001$.

Table 4

Conditional indirect effects of supplementary fit on dependent variables, via cohesion, on the individual- and the team-level

Indirect effect	Value of moderator (complementary fit)	Estimate	*p*-value
Individual-level:			
Supplementary fit on team satisfaction	Very low (-2 SD)	.34	<.001
	Low (-1 SD)	.25	<.001
	Average	.17	<.001
	High (+1 SD)	.08	.07
	Very high (+2 SD)	-.01	.90
Supplementary fit on team viability	Very low (-2 SD)	.34	<.001
	Low (-1 SD)	.25	<.001
	Average	.17	<.001
	High (+1 SD)	.08	.16
	Very high (+2 SD)	-.01	.90
Team-level:			
Supplementary fit on team satisfaction	Very low (-2 SD)	-.43	<.001
	Low (-1 SD)	-.27	<.001
	Average	-.12	.08
	High (+1 SD)	.04	.51
	Very high (+2 SD)	.19	<.001
Supplementary fit on team viability	Very low (-2 SD)	-.51	<.001
	Low (-1 SD)	-.32	<.001
	Average	-.14	.03
	High (+1 SD)	.05	.54
	Very high (+2 SD)	.23	.01

Supplementary fit on grade assigned to the team	Very low (-2 SD)	-.49	.002
	Low (-1 SD)	-.31	.01
	Average	-.13	.15
	High (+1 SD)	.04	.47
	Very high (+2 SD)	.22	<.001

Appendix.

Table 1.

Supplementary and complementary person-team fit items used in the present study

Supplementary fit (Piasentin & Chapman, 2007)	
Item 1	My personality is similar to the team members I work with
Item 2	My personality is well suited for the personality or 'image' of this team
Item 3	My skills and abilities match the skills and abilities this team looks for in team members.
Item 4	My ability level is comparable to those of my team members
Complementary fit (Piasentin & Chapman, 2007)	
Item 1	I feel that I am important to this team because I have such different skills and abilities than my team members
Item 2	My team members rely on me because I have competencies that they do not have
Item 3	My knowledge, skills, and abilities offer something that other team members in this team do not have
Item 4	Even though my personality differs from my team members, it seems to complement their personalities.
Item 5	When key decisions are made, my team members consult me because I have a different perspective than they do.